

# The Devil is in the Details

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**W**e had only one more 200-metre stretch of road to cross-section and we would be finished our audit of the LIDAR generated topographic data of the proposed road corridor. With the temperature hitting 47° C in the shade that last 200 metres might as well have been 200 kilometres. In Algeria, in the summertime, when the winds blow in from the Sahara in the south, you know its going to be hot and you can forget about getting any outdoor work done in the middle of the day.

Our company, MMM Group Limited, formerly Marshall Macklin Monaghan Limited, was contracted to design a section of the new \$11 billion Trans-Algerian Highway that will cross the north portion of the country, from Tunisia in the east to Morocco in the west. Existing topographic conditions, in the form of a LIDAR produced topographic survey, had been provided to us by the client for use in the design process but questions had been raised about the reliability of the data. To address these concerns we undertook an audit of the data and the vertical control it was based upon. A relatively simple survey undertaking in principal, the problem was in the details.

Problem one was that it would take six months to obtain an import permit for our GPS equipment but we only had six weeks to complete the survey. Problem two was that Algeria has two official languages Arabic and French, and a third un-official local language, Berber. Problem three: Algeria is a cash society. Credit cards are only accepted at a few of the larger hotels in the capital, or the larger port cities.

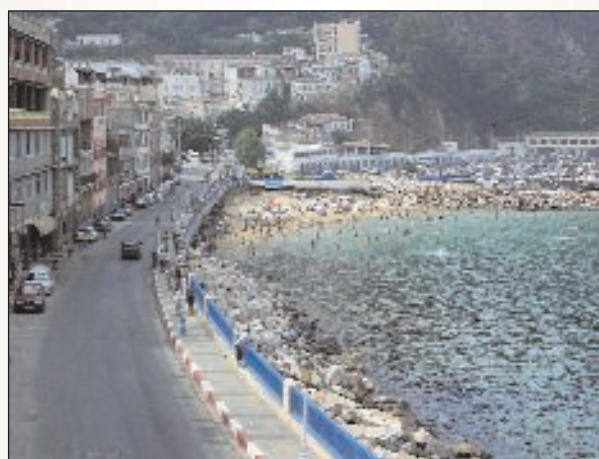
Debit cards do not exist in the country and the Dinar, the official currency, can only be exchanged inside the country.

Problem three, a cash society, was the easiest to deal with. Coming from a credit card and debit card society, it was a bit strange at first walking



The Village of Hamidi Krouma.

around with tens of thousands of Dinars in my pocket but it is something you soon got used to. Ten Dinars is equal to about 15 cents so it was not unusual to pay seven to 15 thousand



La Plage Stora.

Dinars for a night's accommodation in the larger hotels in the capital. Lunch at a local roadside café would be 350 Dinars about \$5.50. Automotive diesel was the real bargain though at 10 Dinars, or 15 cents, per litre. No

worries there about filling up the SUV.

Problems one and two, import restrictions and language differences were solved in part by finding a local firm to work with and in part by brushing up on my high school French before heading in-country. As luck would have it, or perhaps it was good planning on our part, I prefer to believe the latter, the local company we found to work with not only was knowledgeable of the area and the specific project, having worked on earlier phases, but also had staff that spoke all three languages and had GPS equipment that we could rent.

So after three weeks in country we had our answers and as is often the case, more questions were raised. Were there problems with the data? Yes. Should re-observation and adjustments of the vertical control network be undertaken? Probably. Was there time and would the client pay to undertake the work? Definitely not. Were the problems of a magnitude that would prevent the design process proceeding? Marginally no. So, while we did find significant discrepancies in the vertical control through the sections we surveyed, given the distances, the errors could be dealt with by distributing them between the control stations.

So ultimately our due diligence cost thousands of dollars and six weeks, but the consequences of not carrying out the audit and finding errors in the provided data

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